THE INVENTION CLAIMED IS:

1. An electrospray mass spectrometer fitted with an electrospray ion source, said ion source being provided with a nebulization nozzle having an axis and having a sampling orifice having an axis, the axis of the nebulization nozzle intersecting the axis of the sampling orifice, said electrospray ion source comprising:

a relatively movable cold-spray desolvation chamber that can be moved off the axis of the nebulization nozzle in an electrospray ionization mode and set on the axis of the nebulization nozzle in a cold-spray ionization mode.

2. The electrospray mass spectrometer of claim 1, wherein said nebulization nozzle consists of a capillary for guiding a sample solution supplied from a sample inlet port and a pipe for guiding a nebulizing gas introduced from a gas inlet port, said pipe coaxially surrounding the outer surface of said capillary.

3. The electrospray mass spectrometer of claim 2, wherein the temperature of said nebulizing gas is adjustable to room temperature in the electrospray ionization mode and between room temperature and approximately -50°C in the cold-spray ionization mode.

4. The electrospray mass spectrometer of claim 1, wherein said nebulization nozzle is substantially coaxially inserted in a heated cylindrical desolvation chamber, the nozzle opening into the cylindrical desolvation chamber, and wherein said cylindrical desolvation chamber has a gas inlet port for introducing a heating-and-drying gas.

5. The electrospray mass spectrometer of claim 4, wherein a potential difference of 1-3 kV is imposed between said nebulization nozzle and the sampling orifice, and wherein a potential difference from zero to hundreds of volts is imposed between said cylindrical desolvation chamber and the sampling orifice.

6. The electrospray mass spectrometer of claim 5, wherein when ions to be observed are positive ions, the sampling orifice is setable at a lower potential, and wherein when ions to be observed are negative ions, the sampling orifice is setable at a higher potential.

7. The electrospray mass spectrometer of claim 1, wherein when a mixture of droplets of a sample and a nebulizing gas are electrostatically sprayed from said nebulization nozzle and the flow rate of sample solution is setable to 1-1,000 microliters per minute.

8. The electrospray mass spectrometer of claim 4, wherein in the electrospray ionization mode, the heating-and-drying gas is introduced into said cylindrical desolvation chamber from the gas inlet port, and wherein the introduced heating-and-drying gas and heating performed by a heater buried in an inner wall of the desolvation chamber cooperate to dry and desolvate the liquid droplets.

9. The electrospray mass spectrometer of claim 8, wherein the heater for the cylindrical desolvation chamber is controllable to approximately +100 to 300°C.

10. The electrospray mass spectrometer of claim 8, wherein the temperature of said heating-and-drying gas is controllable to approximately +100 to 300°C.

11. The electrospray mass spectrometer of claim 4, wherein in the cold-spray ionization mode, the supply of the heating-and-drying gas from the gas inlet port may be cut off and the heater buried in the inner wall of the cylindrical desolvation chamber deenergized to thereby produce multiply charged molecular ions with solvent molecules attached.

12. The electrospray mass spectrometer of claim 11, wherein in the cold-spray ionization mode, a cooled gas may be supplied into said cylindrical desolvation chamber from the gas inlet port.

13. The electrospray mass spectrometer of claim 11 or 12, wherein temperature of said movable desolvation chamber is setable to room temperature or below in the cold-spray ionization mode.

14. The electrospray mass spectrometer of claim 1, wherein the temperature of said desolvation chamber is setable between room temperature and approximately 0°C in the cold-spray ionization mode.

15. The electrospray mass spectrometer of claim 1, wherein said cold spray desolvation chamber has a direction-changing channel, and wherein liquid droplets are introduced from an opening at a side of the nebulization nozzle and passed through the channel such that sample ions are discharged from an exit opposite to the sampling orifice.

16. The electrospray mass spectrometer of claim 1, wherein said movable desolvation chamber is supported by a thin support rod for heat insulation.

17. The electrospray mass spectrometer of claim 1, wherein said movable desolvation chamber is fitted with temperature control means such as a microheater, Peltier element, or sensor.

18. The electrospray mass spectrometer of claim 1, wherein a potential difference of zero to hundreds of volts is developed between said movable desolvation chamber and said sampling orifice.

19. The electrospray mass spectrometer of claim 18, wherein when ions to be observed are positive ions, the sampling orifice is setable at a lower potential, and wherein when ions to be observed are negative ions, the sampling orifice is setable at a higher potential.

20. The electrospray mass spectrometer of claim 1, wherein the sampling orifice is setable to a temperature of approximately +80°C in the electrospray ionization mode and to around room temperature in the cold-spray ionization mode.

21. The electrospray mass spectrometer of claim 1, wherein the ratio of the amount of ions relative to sample concentration produced in the cold-spray ionization mode is 1/100 to 1/1,000 of the amount of ions relative to sample concentration produced in the electrospray ionization mode.